



MURRAY

**PUBLIC
SERVICES**

**Annual Drinking Water
Quality Report
2007**





Mayor's Message

Dear Water Customer,

Are you 'Water Smart'? We are delighted to present our annual water quality report for the 2007 calendar year. This report contains information regarding analytical results and other information important to you concerning the quality of Murray City's water. This report also provides an opportunity to educate and inform you of specific issues concerning the City's water system.

Each year Murray City staff and elected officials determine where best to allocate our resources to make major repairs and upgrades to an aging water system. As you can imagine, this is no small task. The Public Services Department has developed water and wastewater master plans that are updated from time to time. This helps keep us focused on specific line and pump equipment replacement projects required to meet future needs.

To help us keep up with the ever growing demands on our water and wastewater infrastructure, the City of Murray is developing and will implement a more comprehensive water efficiency program that we hope will inspire residents to get involved and save water. You may ask, "Why do I need to conserve water when there seems to be plenty?" Furthermore, you may think that conserving water will ultimately cost you more in fees resulting from reduced revenue to the City. Our hope is that we can convince you that conserving water is both responsible and cost effective.

Please take the time to read through this report and become familiar with the information and facts provided. Please keep it available for future reference as you become 'Water Smart'.

Sincerely,

Daniel C. Snarr

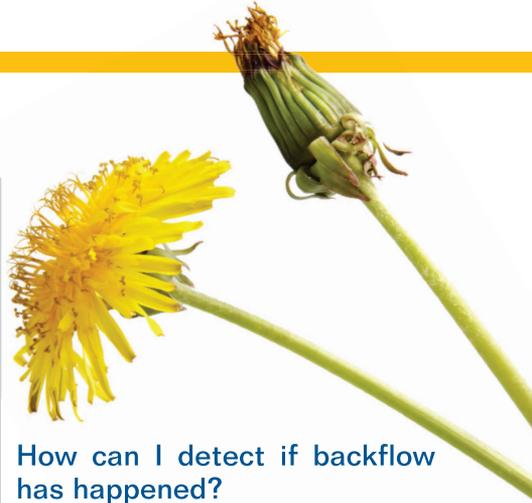


Murray City Council	
Krista Dunn	Jim Brass
Pat Griffiths	Jeff Dredge
Robbie Robertson	

Backflow Basics

A cross connection can be defined as any part of a plumbing connection through which contaminated water could enter a plumbing system. Cross connections can easily happen in any home, building or water system. Age or changes in the piping affecting the operation of the plumbing system are just some of the causes. Frequently, persons unaware of the inherent dangers of cross connections repair or install plumbing or make connections to water supply systems without considering the dangerous conditions that may be created by an improper installation. Increased pressures or lack of pressure in a water delivery system can, in turn, cause backflow situations as well. Examples of cross connections in residential housing could be a connection between culinary water pipes and secondary irrigation or non-approved wells. It could include improper installation of a water softener or lawn irrigation system. In commercial and industrial facilities, improper connections between the fire suppression system and the culinary water system can pose dangers.

Cross connections and backflow incidents in Utah are rare but have resulted in dangerous, highly contaminated water unexpectedly entering drinking water systems. Irrigation waters, oil, toxic boiler compounds, sewage, pesticides and other extremely dangerous contaminants have found their way into drinking water systems. The most common cross connection contamination occurs when you fertilize or spray weed killer by using a dispenser that is connected to your hose. The results can mean a change in your water color, a bad taste or smell or possible exposure to deadly pathogens entering your plumbing system.



How can I detect if backflow has happened?

There are some very simple ways to detect if you have a problem.

- ① Unusual smell or taste like gasoline or pesticides.
- ② Color or appearance does not look right, like a bright orange or green or an oily appearance or film in the water.

To help prevent these occurrences, a joint understanding of responsibilities is important for the customer and the water supplier. In our case, Murray City Corporation specifically promises to provide an adequate and safe water supply to all its consumers and in turn, the consumers promise to follow all the local laws, ordinances, codes and policies. If we jointly work to this understanding, we can protect both the drinking water system and all its potential consumers.

For additional information about what you can do to help prevent cross connections or backflow situations, you can contact Murray City Water or look to Murray City Corporation's web site, www.murray.utah.gov and review the attached links.



Murray City Watering Guide

Did you know that a typical Utah lawn only requires about 24 inches of water per year, yet the average Utah lawn receives about 50 inches of water, more than double the required amount. Automatic irrigation systems are a great way to save time and water if properly managed, otherwise they can be a huge water waster. Make sure your sprinkler heads are putting the water where it needs to go, not on driveways, sidewalks or in the gutter. Adjust the time so that each station runs adequate days and time each week. The worst thing that a home owner can do is to set their sprinklers in the spring and then forget about it. Adjust your watering times based on Murray City's recommended schedule;



Water between the hours of 6:00 pm and 6:00 am.

Month	Interval
April	Once every 6 days
May	Once every 4 days
June	Once every 3 days
July	Once every 3 days
August	Once every 3 days
September	Once every 6 days



Murray City Water Wise Tips

Water is essential to life...too little water and we die, too much water and we drown. The same is true for our lawn and landscape. While most people are concerned about not watering their lawn and plants enough, the fact is that more lawns and landscapes are damaged or destroyed by over watering. Please take a moment to read the following conservation tips.



How To Calculate Your Water Bill

Murray City's water meters record the amount of water used in cubic feet with our units designed to represent 100 cubic feet or 748 gallons. So, as you read your bill you will notice the number of units used, multiply that by 748 gallons and that will give you your total gallons used for that billing period. For example, if you used 28 units during any single billing period, you would calculate your total gallons used like this, $28 \times 748 = 20,944$ gallons.



Murray City Water Wise Tips

Schedule a Free Water Audit

We encourage all homeowners to take advantage of a free water audit conducted by the Jordan Valley Water Conservancy District and Murray City. This audit will evaluate your system and suggest specific watering times and frequency. Remember, it's FREE!

A typical water check lasts 60-90 minutes. During the water check, sprinkler output and efficiency, soil type and hose and sprinkler pressure are calculated. The end result for the resident is a customized, water efficient irrigation schedule. To schedule your free water check appointment, call the Conservation Hotline at 1-877-SAVEH2O (1-877-728-3420).

Call today and a representative will come to your house and show you ways to:

- ◆ Save money on your water bill.
- ◆ Improve the appearance of your yard.
- ◆ Be more water efficient.
- ◆ Maximize your sprinkling system.
- ◆ Plan your personal watering schedule.
- ◆ Get information on water-saving landscaping.
- ◆ Find answers to questions about outdoor watering and water conservation.

Look at Your Lawn Before You Water

Grass in need of water will have a gray-blue cast to it rather than a deep blue-green color. Also, footprints will still appear after a half-hour or more on a lawn in need of water.

Water Early in the Morning

Set your irrigation timer to water between the hours of 6:00 p.m. and 6:00 a.m.. This will lessen the demand on our water system during peak use. This time frame also reduces water lost to evaporation.

Mulch

Mulching around the base of trees and in shrub beds helps to reduce moisture loss, improves water and air penetration and keeps the soil cool and stable. Wood chips, shredded bark, dried grass clippings or pine needles all can be used for mulch.



Murray City's Consumer Confidence Report

We are pleased to present to you Murray City's 2007 Annual Drinking Water Quality Report. This report is designed to inform you about the quality of the water and services we deliver to you every day. We are committed to continually making improvements to our water system to ensure that the quality of your water is safe, dependable and properly protected.

Murray City water sources include springs, underground water wells and may include water purchased from Salt Lake City Big Cottonwood Canyon Water Treatment Plant.

Murray City routinely monitors for contaminants in our drinking water in accordance with the Federal and State Drinking Water Rules. The following table shows the results of our monitoring for the calendar year of 2007, beginning January 1, through December 31. All drinking water may reasonably be expected to contain at least small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk.

Key to Table

MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFL	Million fiber per liter (measures Asbestos)
NTU	Nephelometric Turbidity Units (cloudiness)
Cfu	Colony forming units (bacterial cell colonies)
pci/L	Picocuries per liter (radioactive units)
ppm	Parts per million (mg/l 1 penny in \$10,000)
ppb	Parts per billion (ug/l, 1 penny in \$10 million)
ppt	Parts per trillion (1 penny in \$10 billion)
ppq	Parts per quadrillion (1 penny in \$10 trillion)
TT	Treatment technique, method
UR	(unregulated, no EPA standard set)
ND	Non-detected (less than the method can see)
SW	State waiver (never used or detected)
NR	Non reportable
NE	Not established

Water Trivia Questions

What percentage of all the water is used for residential use?

What hours of the day should you avoid watering your landscape?

What percentage of the water on earth is potable?

At 60 PSI with a quarter inch diameter continuous leak in your pipe, how much water would be lost in a three month period?

What percent of the water we use is used for outdoor use?

How much water is used for toilet use?

How To Read The Chart

This chart lists the most recent test results for the facilities listed and indicates the most likely source of contamination. The data is a range for all wells and springs with the lowest and the highest levels.

Maximum Contamination Level (MCL) is the highest level of a contaminant that is allowed in drinking water. Using the best available technology, MCL's are set as close to the goal as feasible.

Maximum Contaminant Levels Goal (MCLG) is the level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.

In addition to the parameter listed in this report, Murray City monitors for many unregulated contaminants. The results of these tests are available at the Public Services office.

Frequently Asked Questions

Water department employees		16
Murray water service area population		35,000
Total gallons used		3,343,522,000
Total acre feet		10,260.89
Number of water sources	Deep wells	19
	Springs	7
Average hardness of Murray water		200 mg/l
		12 grains/gallon
Water service connections		9,825
Total miles of water lines		183
Total fire hydrants	(City owned)	1227
	(Privately owned)	498
Water storage capacity (gallons)		12,000,000
What number to call for a water audit		(1-877-728-3420)
		1-877-SAVE-H2O
Water conservation information		www.murray.utah.gov
		www.jvcd.org

Important Phone Numbers

Emergency / After Hours:
264-9669

Public Services, Water, Wastewater, Streets, General Office:
270-2440

Public Services, Engineering, General Office:
270-2400

Public Services, Planning and Zoning, General Office:
270-2420

Murray City's Consumer Confidence Report

Substance	Units	MCL	MCLG	Murray City ND/Low-High	Most Likely Source of Contamination
Distribution System Contaminants					
Residents Lead	ppm	0.015	0.015	<0.005	Leaching from lead solder in home.
Residents Copper	ppm	1.3	1.3	.01 to .48	Leaching from copper piping in home
Chloroform	ppb	NE	NE	1 to 2.4	By-product of drinking water chlorination
Total Coliform Bacteria	Total Coliform	Presence of coliform bacteria in 5% of monthly samples	0	< 5%	Naturally present in the environment
Fecal Coliform Bacteria	Total Fecal	A routine sample & repeat sample are total coliform positive, & one is also fecal coliform or E. coli positive.	0	0	Human and animal fecal waste
Turbidity	NTU	5	0.03	0 to .6	Soil runoff
THM's Total Trihalomethanes	ppb	80	0	0 to 2.4	By - product from drinking water chlorination
Fluoride	ppm	4	4	.5 to 1	Water additive which promotes strong teeth

Radioactive Contaminants

Alpha emitters	pCi/l	15	0	0 to 13	Erosions of natural deposits
Radon	pCi/l	UR	NE	300 to 590	Erosions of natural deposits
Radium 228	pCi/l	5	0	.1 to .9	Erosions of natural deposits

Inorganic Contaminants

Ammonia	ppm	NE	NE	<.050 to .20	Erosions of natural deposits
Antimony	ppm	0.006	0.006	ND	Erosions of natural deposits
Arsenic	ppm	0.05	0.05	<.005 to .003	Erosions of natural deposits
Asbestos	MFL	7	7	ND	Erosions of natural deposits
Barium	ppm	2	2	.03 to .21	Erosions of natural deposits
Beryllium	ppm	0.004	0.004	ND	Discharge from coal burning factories
Cadmium	ppm	0.005	0.005	ND	Erosions of natural deposits
Chromium	ppm	0.1	0.1	ND	Erosions of natural deposits
Copper	ppm	1.3	1.3	0.12	Erosions of natural deposits
Cyanide	ppm	0.2	0.2	ND	Erosions of natural deposits
Fluoride	ppm	4	4	.2 to .4	Erosions of natural deposits
Lead	ppm	0.015	0	0.011	Erosions of natural deposits
Mercury	ppm	0.002	0.002	ND	Erosions of natural deposits
Nitrate (as N)	ppm	10	10	0 to 4.1	Excess fertilization
Nitrite (as N)	ppm	1	1	ND	Fertilizer runoff
Selenium	ppm	0.05	0.05	.0015 to .003	Erosions of natural deposits
Sodium	ppm	NE	NE	9.3 to 110	Erosions of natural deposits
Sulfate	ppm	500	500	18 to 102	Erosions of natural deposits
Thallium	ppm	0.002	0.5	ND	Leaching from ore processing sites

Murray City's Consumer Confidence Report

Secondary Inorganic Contaminants					
Chloride	ppm	250	NE	10 to 210	Erosions of natural deposits
Magnesium	ppm	UR	NE	7.8 to 43.8	Erosions of natural deposits
Hardness	ppm	UR	NE	81 to 463	Erosions of natural deposits
Iron	ppm	0.3	0.3	<.050 to .97	Erosions of natural deposits
TDS	ppm	1000	1000	88 to 620	Erosions of natural deposits
pH@25 C	units	6.5 to 8.5	6.5 to 8.5	7.44 to 7.98	Measures acidity or alkalinity of water
Potassium	ppm	NE	NE	1.5 to 8.4	Erosions of natural deposits
Hardness	grains/gallon	UR	NE	4.76 to 27.21	Erosions of natural deposits
Silicon	ppm	UR	NE	5.7 to 10	Erosions of natural deposits
Zinc	ppm	5	5	<.01 to .018	Erosions of natural deposits

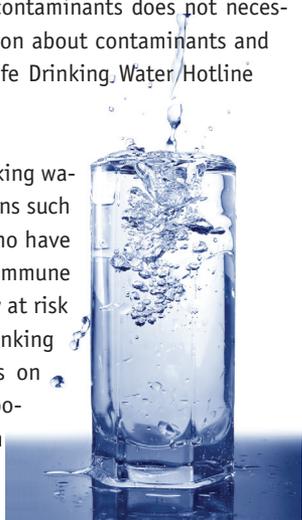
Synthetic Organic Substances					
2,4 - D	ppb	70	70	ND	Runoff from herbicide used on crops
2, 4, 5 - TP	ppb	50	50	ND	Residue of banned herbicide
Acrylamide	ppb	TT	0	ND	Added to water during sewage treat
Alachlor	ppb	2	0	ND	Runoff from herbicide used on crops
Atrazine	ppb	3	3	ND	Runoff from herbicide used on crops
Benzo (a) pyrene	ppt	200	0	ND	Leaching from tanks and pipes
Carbofuran	ppb	40	40	ND	Leaching of soil fumigant used on alfalfa
Chlordane	ppb	2	0	ND	Residue of banned insecticide
Dalapon	ppb	200	200	ND	Runoff from herbicide
Di (2-ethylhexyl) adipate	ppb	400	400	ND	Discharge from chemical factories
Di (2-ethylhexyl) phthalate	ppb	6	0	ND	Discharge from chemical factories, found in the lab
Dibromochloropropane	ppt	200	0	ND	Leaching of soil fumigant used on crops
Dinoseb	ppb	7	7	ND	Runoff from herbicide used on crops
Diquat	ppb	20	20	ND	Runoff from herbicide use
Dioxin	ppq	30	0	ND	Emissions from waste incinerators
Endothall	ppb	100	100	ND	Runoff from herbicide use
Endrin	ppb	2	2	ND	Residue of banned insecticide
Epichlorohydrin	ppb	TT	0	ND	Discharge from industrial chemical factories
Ethylene dibromide	ppt	50	0	ND	Discharge from petroleum refineries
Glyphosate	ppb	700	700	ND	Runoff from herbicide use
Heptachlor	ppt	400	0	ND	Residue of banned pesticide
Heptachlor epoxide	ppt	200	0	ND	Breakdown of heptachlor
Hexachlorobenzene	ppb	1	0	ND	Discharge from metal refineries
Hexachlorocyclopentadiene	ppb	50	50	ND	Discharge from chemical factories
Lindane	ppt	200	200	ND	Runoff from insecticide used on cattle/gardens
Methoxychlor	ppb	40	40	ND	Runoff from insecticide used on fruit/gardens
Oxamyl	ppb	200	200	ND	Runoff from insecticide used on apples/gardens
PCB 's	ppt	500	0	ND	Runoff from insecticide used on apples/gardens
Pentachlorophenol	ppb	1	0	ND	Discharge from wood preserving factories
Picloram	ppb	500	500	ND	Herbicide runoff
Simazine	ppb	4	4	ND	Herbicide runoff
Toxaphene	ppb	3	0	ND	Runoff from insecticide used on cattle/cotton

Murray City's Consumer Confidence Report

Volatile Organic Contaminants					
1,1,1- Trichloroethane	ppb	200	200	ND	Discharge from metal degreasing
1,1,2-Trichloroethane	ppb	5	3	ND	Discharge from industrial chemical factories
1,1-Dichloroethylene	ppb	7	7	ND	Discharge from industrial chemical factories
1,2,4-Trichlorobenzene	ppb	70	70	ND	Discharge from textile finishing factories
1,2-Dichloroethane	ppb	5	0	ND	Discharge from industrial chemical factories
1,2-Dichloropropane	ppb	5	0	ND	Discharge from industrial chemical factories
Benzene	ppb	5	0	ND	Leaching from gas storage tanks
Carbon tetrachloride	ppb	5	0	ND	Discharge from industrial chemical plants
Chlorobenzene	ppb	100	100	ND	Discharge from industrial chemical factories
Cis - 1, 2 - Dichloroethylene	ppb	70	70	ND	Discharge from industrial chemical factories
Dichloromethane	ppb	5	0	ND	Discharge from pharmaceutical factories
Ethylbenzene	ppb	700	700	ND	Discharge from petroleum refineries
O - Dichlorobenzene	ppb	600	600	ND	Discharge from industrial chemical factories
P- Dichlorobenzene	ppb	75	75	ND	Discharge from industrial chemical factories
Styrene	ppb	100	100	ND	Discharge from rubber and plastic factories
Tetrachloroethylene	ppb	5	0	ND	Discharge from metal degreasing sites & factories
Toluene	ppm	1	1	ND	Discharge from petroleum refineries
Trans - 1, 2 - Dichloroethylene	ppb	100	100	ND	Discharge from industrial chemical factories
Trichloroethylene	ppb	5	0	ND	Discharge from metal degreasing and factories
Vinyl Chloride	ppb	2	0	ND	Leaching from PVC piping;
Methylene Chloride	ppb	UR	UR	ND	Discharge from chemical factories
Xylenes	ppm	10	10	ND	Discharge from petroleum factories

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).



Murray City has not experienced any violations of our water quality standards. We will continue to provide an adequate and safe water supply to all our consumers.

How Water Smart Are You?

Did you know that there is as much water today as there was thousands of years ago? Seventy five percent of the earth's surface is covered with water and the most striking statistic is that 97% of that water is of a salt or brackish nature which leaves only 3% to be considered fresh water. Two-thirds of that water is frozen so only 1% of the world's water is used for human consumption.

Water conservation is defined as the preservation, control and development of water resources, both surface and groundwater and the prevention of pollution. So, we all have a stake in the efficient use of our water resources. Providing safe drinking water, maintaining economic competitiveness and protecting ecosystems are all advanced by improvements in water use efficiency. Reducing water demand is typically the lowest cost option for meeting the needs of the future.

Murray City's water system is made up of springs and deep water wells. We do not use or purchase water that comes from the lakes and rivers of the State. We are dependent on the deep groundwater aquifers which are significantly influenced and re-charged by the water sheds along the Wasatch front. Unfortunately they do not recharge as quickly as our lakes do in a single heavy snow fall season.

Water rates are determined using several factors which would include the day to day costs associated with maintaining the water infrastructure such as 183 miles of transmission and distribution water lines, 80 miles of service water lines, 1,300 fire hydrants, 9,600 water meters, 19 wells with associated pumps and equipment, treatment of our spring water, the addition of fluoride into the system, water quality monitoring, maintaining of water rights, drilling of new and replacement water wells, purchasing of water rights and the construction and maintenance of our storage facilities. These are just some of the many ways that we try to keep up with the demands on our system. As we try to meet the day to day demands, we never lose sight of our water quality requirements and safety of our system. We are continually monitoring our system to make sure that when you turn on your water tap, you can be confident that your water is a high quality and safe product.

What does all this have to do with water conservation? This resource is limited and the best way to assure that we have water in the future to meet our needs at a cost that we can afford is to learn to use this precious resource wisely by following the tips offered in this pamphlet and in future bulletins.





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